Thus, although no teaching of agriculture is to be introduced, partly perhaps because the teachers are not qualified to teach it, partly because it would be waste of time to those boys who do not afterwards follow agricultural pursuits, still knowledge of surroundings is being acquired, habits of intelligent observation are being cultivated, and every subject of the school curriculum is acquiring a reality which no oral teaching could ever give it, and which must render the education a better training for life, whatever the after careers of the lads may be.

But while agriculture is not taught, it is noticeable that in the study of surroundings such subjects are suggested as will yield knowledge that is useful to the farmer or farm-hand. For example, the boys are to collect the field and garden weeds, and study their root systems and time of seeding with the view of learning the reasons for their abundance and the best means of dealing with them. From the point of view of cultivating intelligent observation, such an exercise is as good as one that has no utilitarian bearing, and it has this additional value, that the boys learn to apply their knowledge to the practical purposes of rural life.

This idea of *purpose* is kept prominently in view in all the subjects named in the memorandum. Manual work naturally takes an important place, for it is as necessary to cultivate the habit of manual work in childhood as it is the habit of intelligent observation, and its neglect has been another factor in the preference shown by lads after leaving school for non-rural employment, and therefore in rural depopulation. But, again, the manual work is to have purpose. The woodwork is to be directed to making useful things, the gardening to growing useful vegetables, and thus the boys' hearts, as well as their heads and hands, become impressed into their education.

One omission is noticeable—that the teaching of science finds no place in the suggestions. But to acquire a scientific habit of mind, the study of a science is certainly not necessary, nor even perhaps desirable, for children of twelve and thirteen. It is nature-study rather than the study of a natural science that is advocated, for while the correlation of a number of facts or phenomena of the same kind is likely to weary children, the coordination of one fact or phenomenon with others of a different order stimulates their interest and widens their outlook, and permits more readily of application to the purposes of daily life.

The memorandum is followed by a series of "suggestions for the encouragement of rural education." These include the establishment of junior naturalist societies and boys' agricultural clubs, nature-study exhibitions, and school museums of local natural history, together with a suggestion that facilities should be provided for the training of teachers in rural subjects.

LANDSCAPE PROTECTION IN GERMANY.

AN abstract of a lecture delivered on October 1, 1906, at Munich, at the annual meeting of the "Heimatschutz" League, by Prof. H. Conwentz, was recently published in pamphlet form. It deals with what has been done in Germany, and more especially in Bavaria, for the preservation of the forests, of bird and plant life, and of the beauty of the landscape in general.

Even so far back as 1803 a private property near the town of Bamberg, in Bavaria, was bought up by the State, and turned into a people's park. At one time the banks of the Danube were gradually becoming disfigured by large quantities of stone being taken away; it was then determined that the stone for public buildings should be obtained from those quarries which did not interfere with the landscape.

In 1841 an order was issued which dealt more especially with the trees. By it it was made almost impossible to remove or alter the existing avenues in the streets; further, oaks, elms, and beeches were specially to be looked after, and also any trees connected with history or legends. By the Bavarian forest-law of 1852, private as well as public forests came under State superintendence.

About 1902 an order was circulated that for the welfare and the increase of birds, hedges and bushes should be planted, or existing ones looked after. Moreover, uncommon birds were to be particularly safeguarded and spared, as complaints had been forthcoming that their number was decreasing.

Similarly, orders were issued for the preservation of certain local plants which were threatened with extinction in the neighbourhood of Garmisch.

In several cases, telephone wires have been laid underground, and in Saxony a certain proposed mountain-railway was not built in order not to spoil the view.

More recently, we find that in Prussia similar regulations have come into existence. There in 1903 a law was passed forbidding the disfigurement of provincial neighbourhoods by advertisements. The author directs attention to the fact that other countries might profit by obtaining such a law. How beneficial such a one would be to this country!

Further, we find that Saxony, Baden, Hesse, and Weimar have all adopted, in one respect or another, the same precautions.

Before concluding, the author points out how London has led the way in the matter of commons and of retaining woods in its more distant environs, referring more especially to Epping Forest.

SIR JOSEPH FAYRER, BART., K.C.S.I., F.R.S.

ON Tuesday, May 21, Sir Joseph Fayrer died. He was born on December 6, 1824, and he died full of years and full of honours, for he was honorary physician (military) and physician extraordinary to the King, honorary physician to her late Majesty Queen Victoria, M.D. and LL.D. of various universities, and fellow of many learned societies. Yet all his honours were richly deserved, and he bore them with the most unassuming modesty. Many men are acquainted with parts of his work, but very few know the whole. When Huxley died, a wail of grief went up from the scientific world, but many people are unaware that but for Fayrer the course of Huxley's life might have been completely different, and a great part of his scientific work might never have been done. They were fellow students together, Huxley being senior by a year, though Fayrer was actually older by a few months. When Huxley had finished his medical studies he was, as he himself says in the autobiographical sketch prefixed to his essays, wondering what he should do to meet the imperative necessity of earning his own bread, when Fayrer suggested that he should enter the naval medical service. He did so, and after a few months at Haslar he went on his famous voyage on the *Rattlesnake*, and thus began his scientific career. The attraction which drew Fayrer and Huxley together and led to their close friendship was the great likeness between them in many respects. It has been said that in every human face a resemblance may be traced to some animal, and this was markedly so both in Huxley and Fayrer. Especially in his later years Huxley's face and head suggested that of a lion,

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while Fayrer's large, open forehead and calm expression reminded me of an elephant, and one could hardly look at him without thinking how rightly the Hindoos have chosen an elephant's head for their god of wisdom. Both men were alike in the stern uprightness of their characters, in the extent of their knowledge and the wideness of their interests, in the clearness of their views, the correctness of their decisions, their absolute fearlessness, their prompt and energetic action, their firm determination to carry out what they thought right, in their tenacity of purpose, in a certain impatience of opposition, and in their great success in overcoming it. Associated with these qualities which compelled admiration were an extraordinary kindness and tenderness of heart which gained the affection of all who knew them.

It is not so easy to draw a comparison between their intellectual powers, because their spheres of activity were so very different. Huxley's life was passed in the pursuit and teaching of science and philosophy; Fayrer's scientific work was done in the short intervals of time that he could snatch from the pressure of other occupations. While Huxley was on board the *Rattlesnake,* Fayrer was engaged in amputating limbs and treating gunshot wounds in the insurrection at Palermo, and narrowly escaped death at the siege of Rome by the French. Between such occupations, however, he managed to learn sufficient Italian to pass the examinations and obtain the degree of M.D. in the University of Rome, perhaps the only doctor not a Roman Catholic who ever did so.

Before his friend Huxley had come back from his voyage, Fayrer went out to India, and again saw active service in the Burmese war. During this war he distinguished himself so highly that the Governor-General appointed him residency surgeon at Lucknow, the best appointment at his disposal, as a reward for his services.

In order to carry on his work he had to learn Hindostani and Persian, and in addition to all his medical work he had to conduct a great deal of the correspondence between the British Government and the King of Oude. When the Indian Mutiny broke out, Fayrer's house in Lucknow was one of the most exposed to the enemy's attack, and he himself took an active part in the defence of the town as well as attending to all the medical and surgical work which disease from insanitary conditions, unsuitable food and the wounds by shot and shell caused amongst the besieged.

Broken in health, Fayrer returned to England after the Mutiny, but instead of remaining idle he went to Edinburgh, worked at the university, passed his examinations, and received the degree of M.D. He then returned to India, where he became professor of surgery in Calcutta.

In 1870 he went with the Duke of Edinburgh on his travels in India, and in 1875 accompanied the King, who was then Prince of Wales, to India. He was a keen sportsman, and was fond of zoology, and in 1867, when president of the Asiatic Society of Bengal, he proposed to found a Zoological Gardens in Calcutta, a proposition which, after some years, was carried into effect. He also proposed an ethnological investigation of the races of India, but this was never fully carried out.

Much of his time was taken up by pathological investigation and sanitary work, but the research in which he took the greatest interest was his zoological work on the snakes of India and his physiological investigation into the action of their venom. It was during this investigation that he first tried the effect of various antidotes, one of which, permanganate of potash, is now beginning to be used in such a way as to preserve life in cases of snake bite which would otherwise have been fatal. The difficulties under which his scientific work was carried out are shown by the fact that he had often to leave an experiment of this kind in order to attend to his hospital work, and that while there amputating a limb or performing some other operation his mind would be disturbed by anxiety regarding the condition of his private patients, who were anxiously waiting for him. But for Fayrer's extensive knowledge and firm dedecision in difficult circumstances, the Prince of Wales, with whom he was travelling, might possibly have been induced by the earnest entreaties of various personages to visit infected places, with the probable result that cholera might have spread over large districts of India, and that our King might never have returned from his visit to that part of his Empire. Not only do scientific men owe a great debt to Fayrer for his own contributions to science and for the bias he gave to Huxley's life, but also for the care which he took of our King's life and the benefits which its preservation has conferred upon the Empire.

At Fayrer's funeral one of the wreaths bore the gracious inscription,

"For Auld Lang Syne from Edward VII."

LAUDER BRUNTON.

SIR DIETRICH BRANDIS, K.C.I.E., F.R.S.

BY the death of Sir Dietrich Brandis, which occurred at Bonn on May 28, a man of world-wide renown has been removed. Brandis was born on April 1, 1824, at Bonn, being the son of Dr. Christian Brandis, professor of philosophy in Bonn University. As a boy he followed his father to Greece, where he spent several years. On his return to Germany he was educated at the Universities of Copenhagen, Göttingen, and Bonn. He became, in 1849, lecturer (*Privat-docent*) on botany at Bonn. In 1854 he married a daughter of Dr. Marshman, of Bengal. This happened to be the turning-point in his career.

After the occupation of the province of Pegu in Burma, Lord Dalhousie was looking for a man to take charge of the important teak forests of that province, when his attention was directed to Brandis by the latter's brother-in-law, General Sir Henry Havelock. Lord Dalhousie wrote to Brandis that if he would come to India he would be appointed superintendent of the Pegu teak forests. The offer was accepted, and Brandis landed at Calcutta in 1856. He explained his views to Lord Dalhousie, who, in taking leave of him, said, "Dr. Brandis, if you carry out the scheme which you have explained to me, you will confer a great benefit upon this country." Brandis never saw Lord Dalhousie again, but his parting words remained with him throughout his service. Brandis set to work to save the Burma teak forests, in which endeavour he had the full support of Major (afterwards Sir Arthur) Phayre. After a long-continued struggle the forests were placed under systematic management, and they, with the forests of Upper Burma, are now the chief supply of teak timber to the world.

In 1862, Brandis was called to Simla, at the suggestion, it is believed, of Dr. Cleghorn, one of the principal pioneers of forest conservancy in India, to advise the Government of India on forest matters in other provinces, and in 1864 he was appointed the first Inspector-General of Forests to the Government of India. He then set to work to introduce systematic forest management throughout India. A regular department was established and a forest law passed. Brandis travelled from one end of the Bengal Presidency to the other, advising and organising the department. He also visited Bombay twice, and

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